FIG.1
Background Art

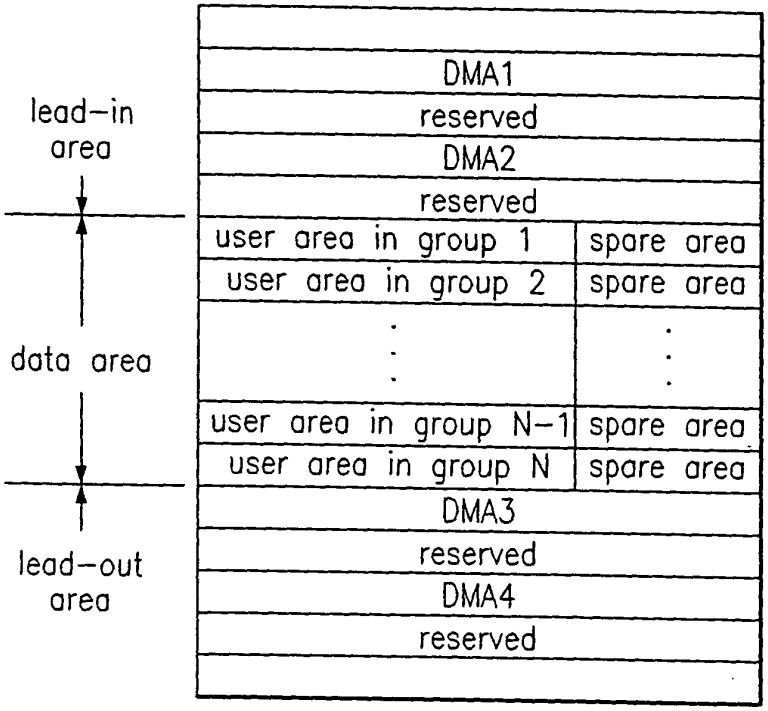


FIG.2A
Background Art

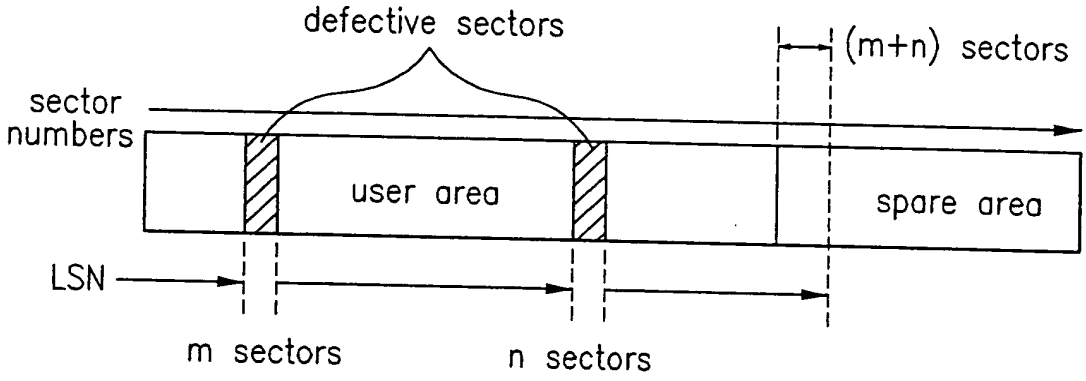


FIG.2B
Background Art

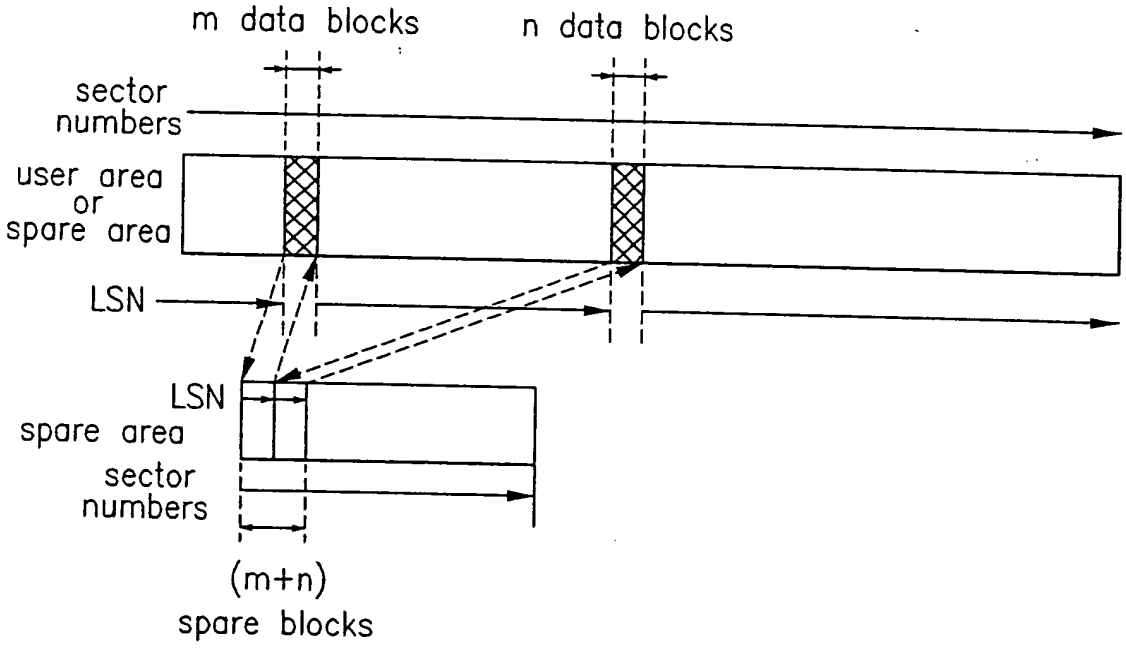


FIG.3
Background Art

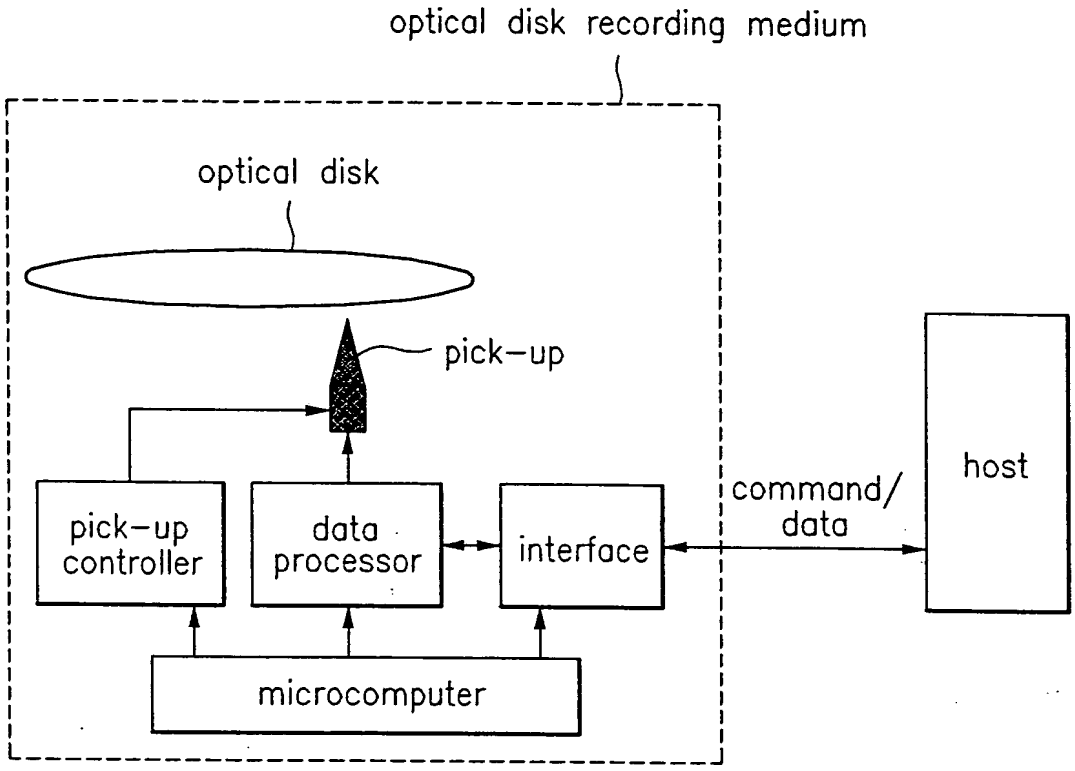


FIG.4A
Background Art

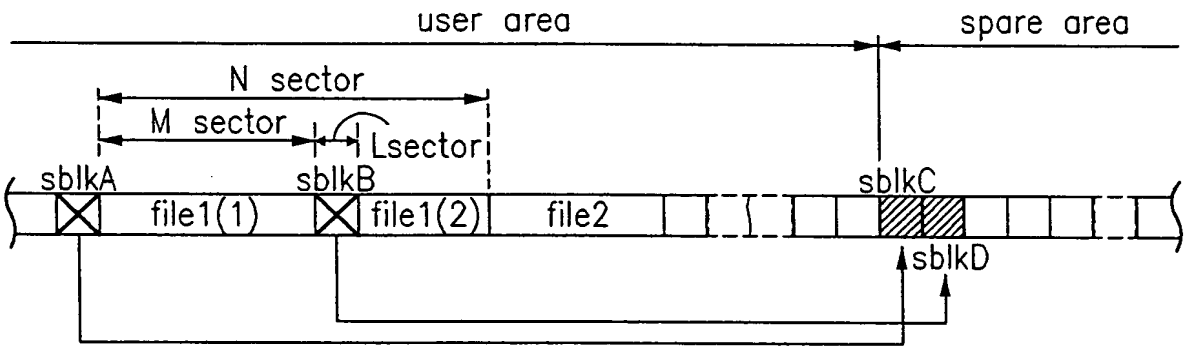


FIG.4B
Background Art

	starting sector address	sector number
file1	A	N

FIG.4C
Background Art

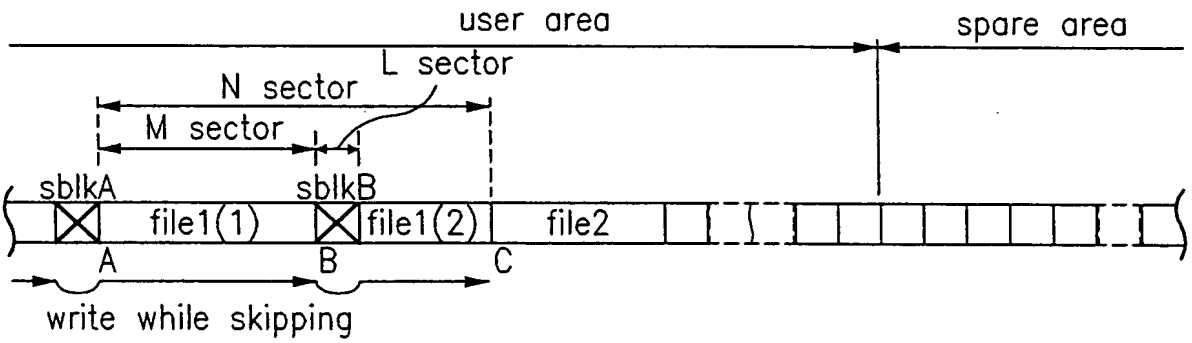


FIG.4D
Background Art

	starting sector address	number of sectors
first representing method for file 1	A	N
second representing method for file 1	A	N−L

FIG.5

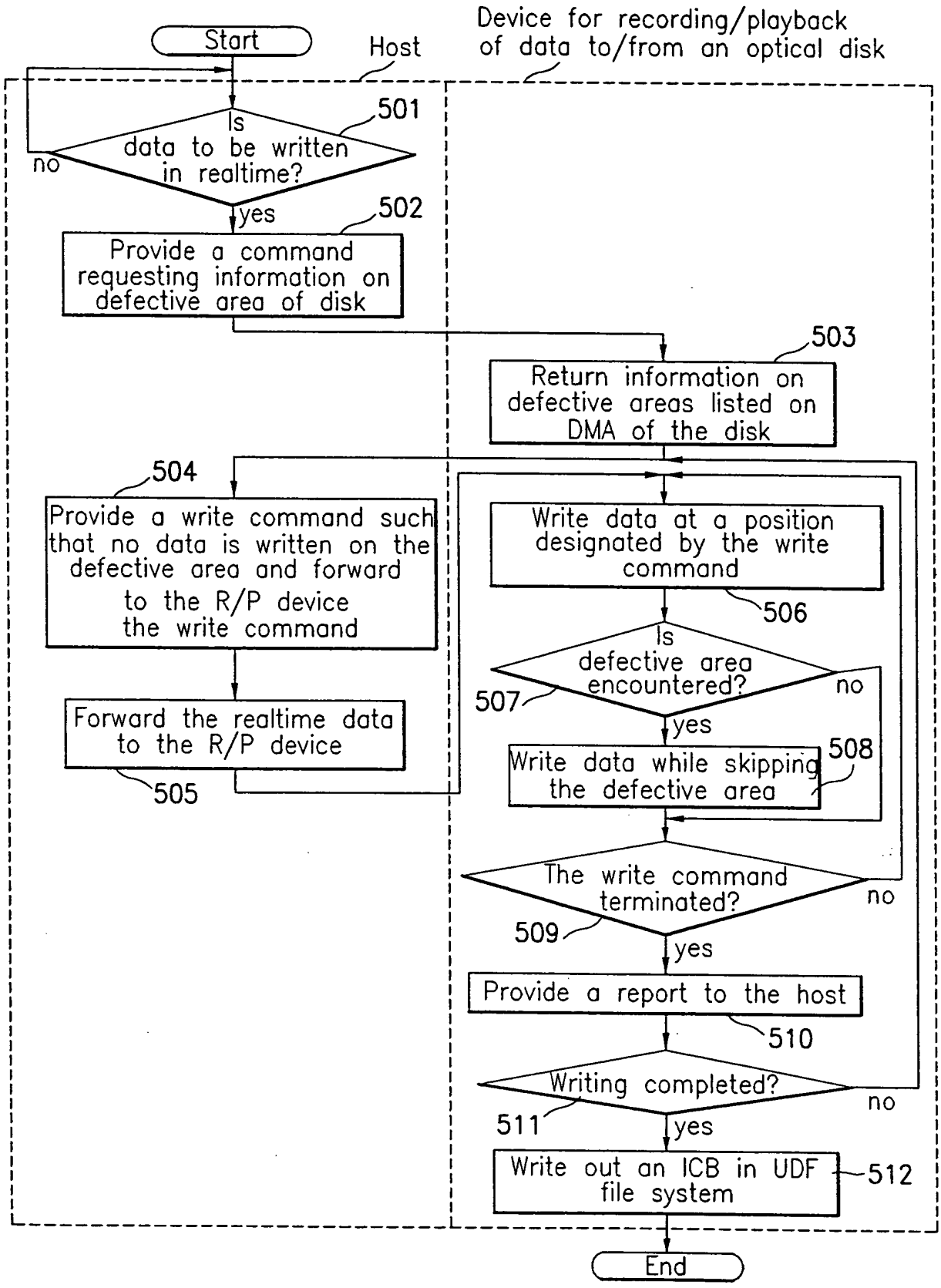

Start
Host
Device for recording/playback of data to/from an optical disk
501
Is data to be written in realtime?
no
yes
502
Provide a command requesting information on defective area of disk
503
Return information on defective areas listed on DMA of the disk
504
Provide a write command such that no data is written on the defective area and forward to the R/P device the write command
Forward the realtime data to the R/P device
505
Write data at a position designated by the write command
506
Is defective area encountered?
507
no
yes
Write data while skipping the defective area
508
The write command terminated?
509
no
yes
Provide a report to the host
510
Writing completed?
511
no
yes
Write out an ICB in UDF file system
512
End

FIG.6A

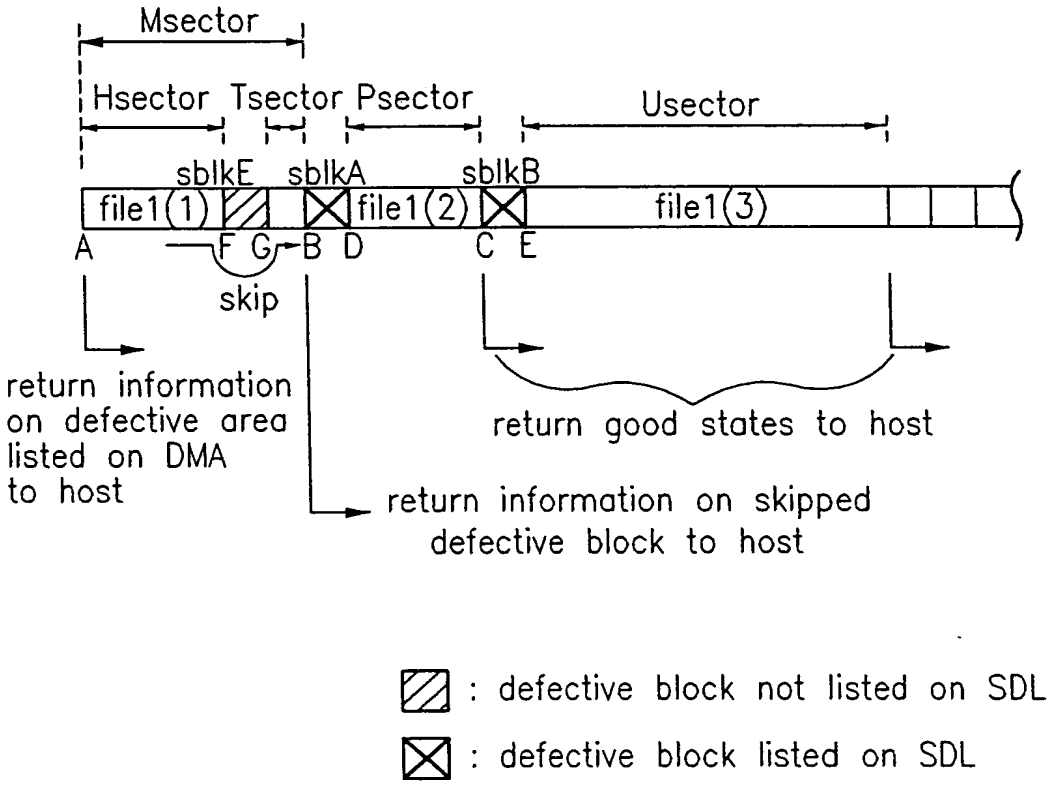

Msector
Hsector
Tsector
Psector
Usector
sblkE
sblkA
sblkB
file1(1)
file1(2)
file1(3)
A
F
G
B
D
C
E
skip
return information on defective area listed on DMA to host
return information on skipped defective block to host
return good states to host
: defective block not listed on SDL
: defective block listed on SDL

FIG.6B

Byte \ Bit	7	6	5	4	3	2	1	0
0		Error Code(70h)						
1	Reserved							
2			ILI	Reserved	Sense Key			
3	Information							
4								
5								
6								
7	Additional Sense Length							
8	reserved							
9								
10	reserved							
11								
12	Additional Sense Code							
13	Additional Sense Code Qualifier							
14	Field Replaceable Unit Code							
15	LSN1							
16								
17								
18	LSN2							
19								
20								
	⋮							

FIG.6C

	starting sector address	number of sectors
file 1	A	H
	G	T
	D	P
	E	U

FIG.7

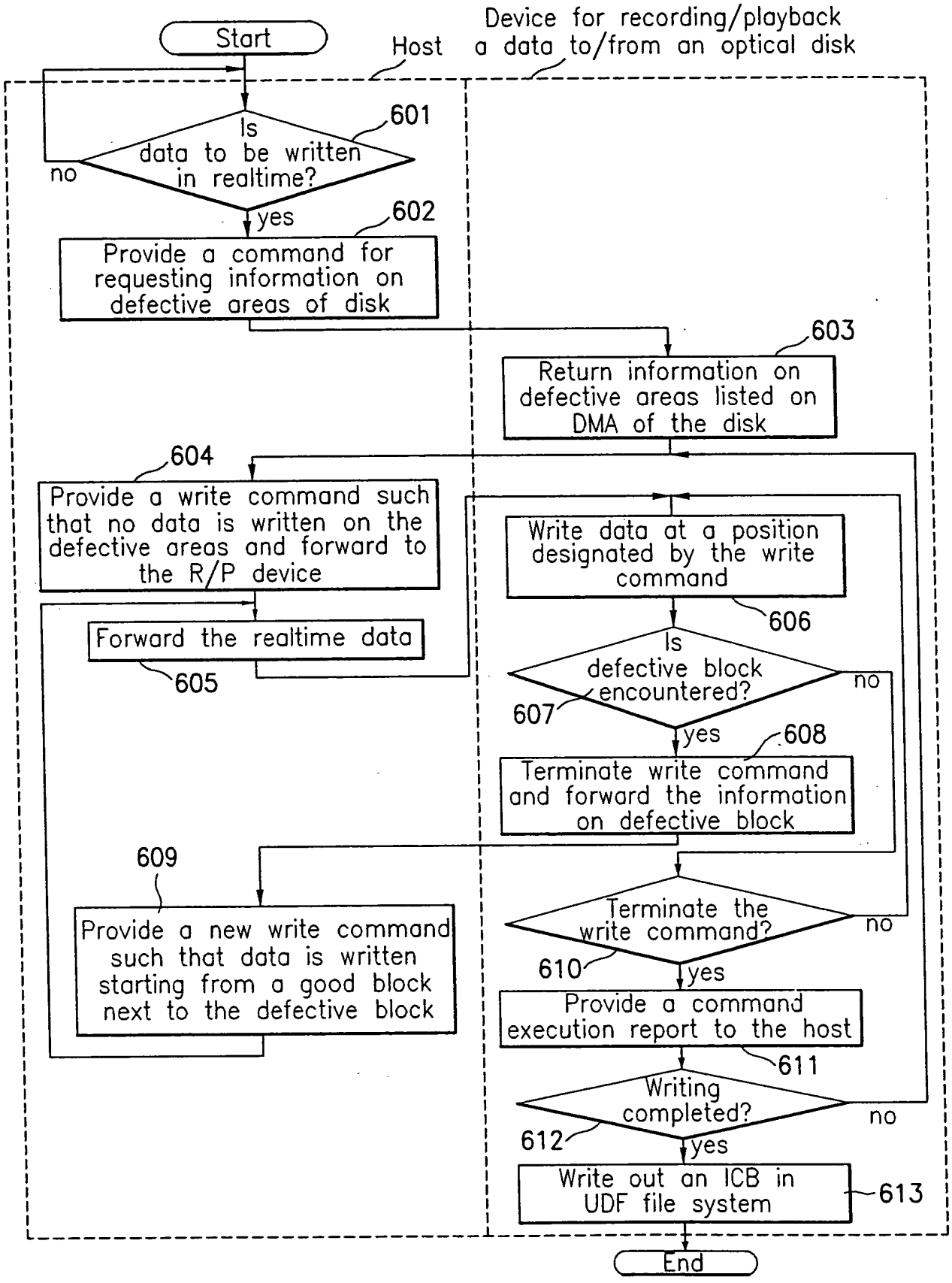
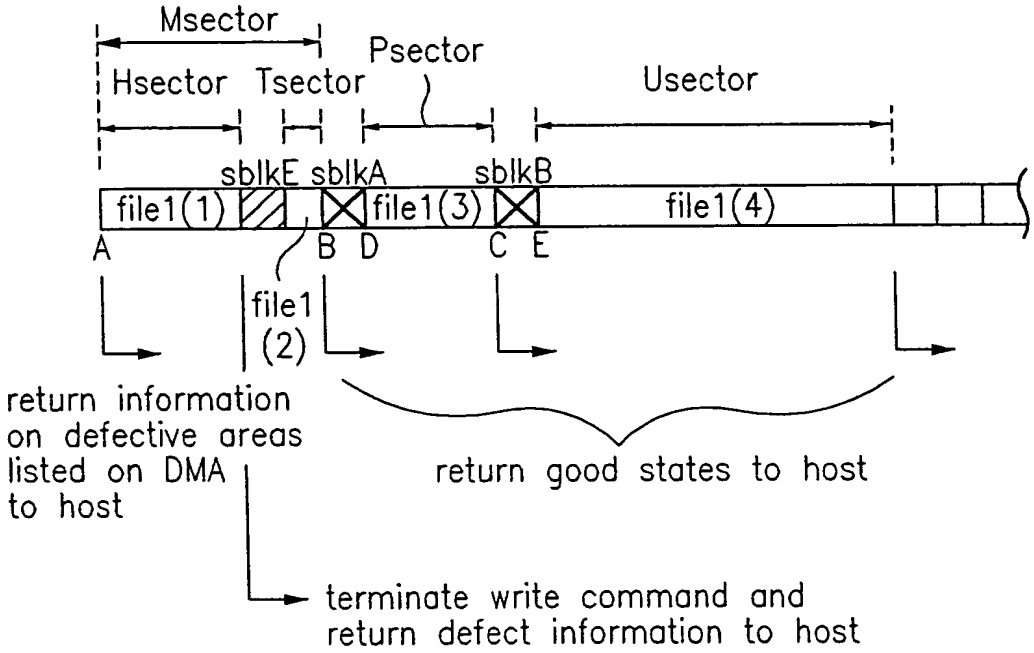

Start
Host
Device for recording/playback a data to/from an optical disk
Is data to be written in realtime?
601
no
yes
Provide a command for requesting information on defective areas of disk
602
Return information on defective areas listed on DMA of the disk
603
Provide a write command such that no data is written on the defective areas and forward to the R/P device
604
Forward the realtime data
605
Write data at a position designated by the write command
606
Is defective block encountered?
607
no
yes
Terminate write command and forward the information on defective block
608
Provide a new write command such that data is written starting from a good block next to the defective block
609
Terminate the write command?
610
no
yes
Provide a command execution report to the host
611
Writing completed?
612
no
yes
Write out an ICB in UDF file system
613
End

FIG.8A



: defective block not listed on SDL

: defective block listed on SDL

FIG.8B

Bit / Byte	7	6	5	4	3	2	1	0
0		Error Code(70h)						
1	Reserved							
2			ILI	Reserved	Sense Key			
3	Information							
4								
5								
6								
7	Additional Sense Length							
8	listed sector number							
9								
10	consecutive defective sector number							
11								
12	Additional Sense Code							
13	Additional Sense Code Qualifier							
14	Field Replaceable Unit Code							

FIG.9

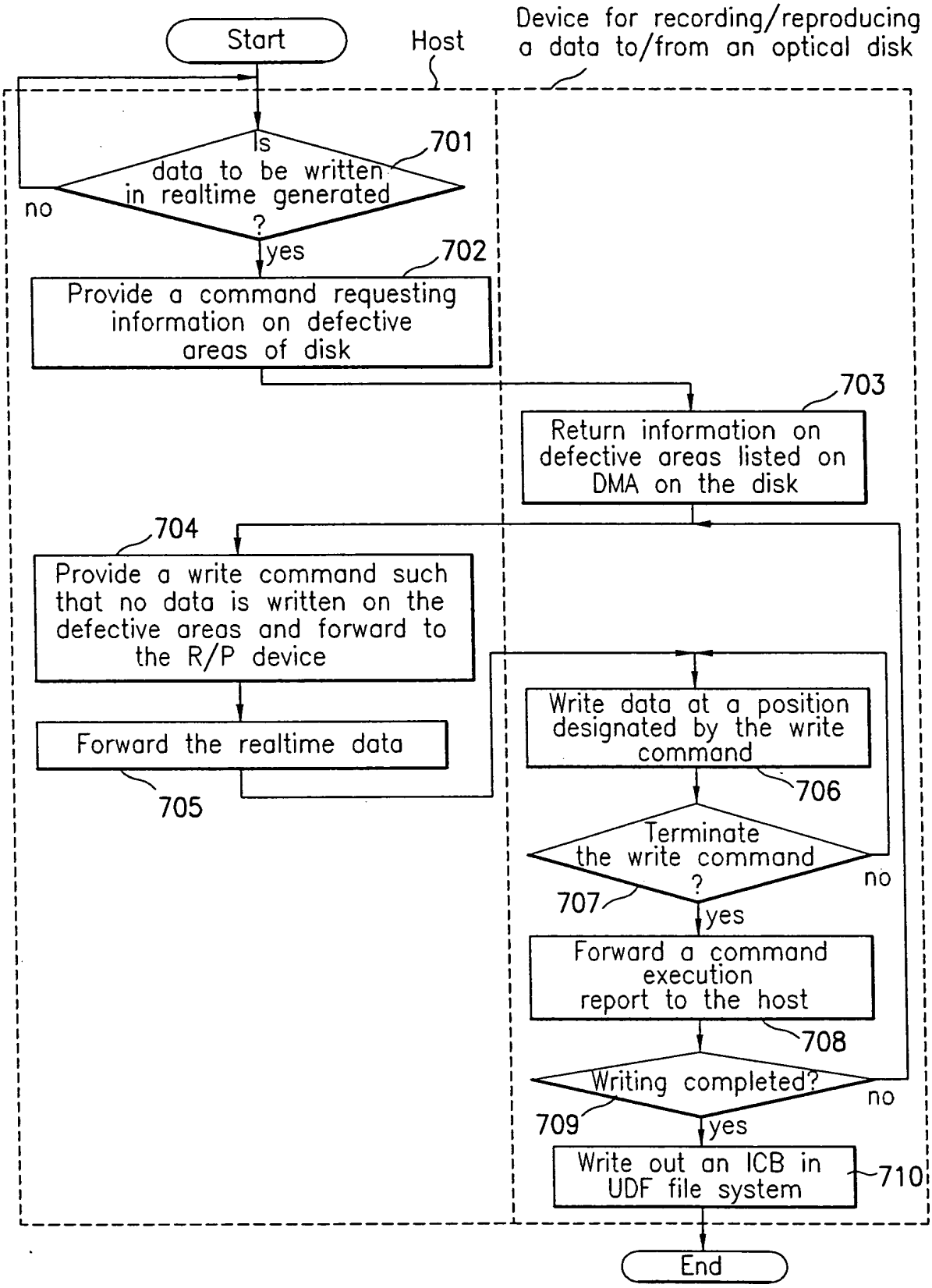
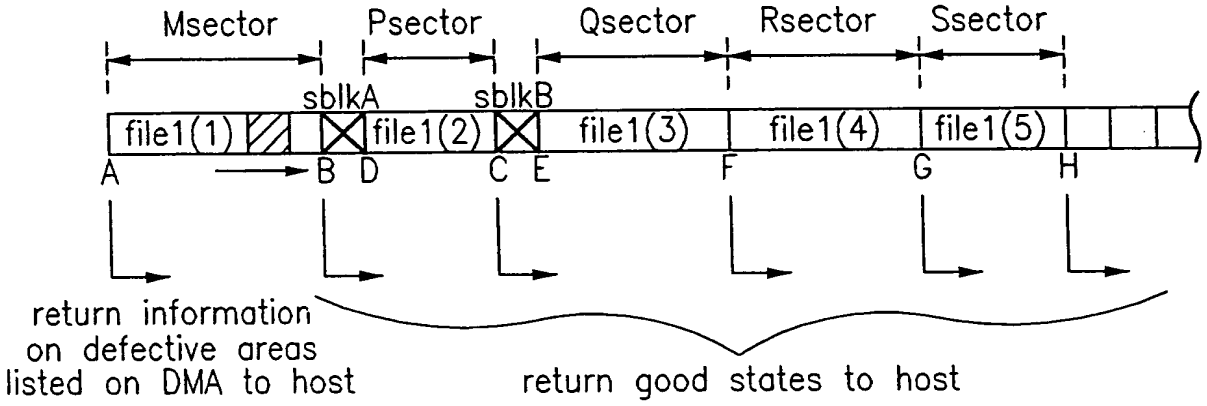

Start
Host
Device for recording/reproducing a data to/from an optical disk
Is data to be written in realtime generated ?
701
no
yes
Provide a command requesting information on defective areas of disk
702
Return information on defective areas listed on DMA on the disk
703
Provide a write command such that no data is written on the defective areas and forward to the R/P device
704
Forward the realtime data
705
Write data at a position designated by the write command
706
Terminate the write command ?
707
no
yes
Forward a command execution report to the host
708
Writing completed?
709
no
yes
Write out an ICB in UDF file system
710
End

FIG.10A



: defective blocks not listed on SDL

: defective blocks listed on SDL

FIG.10B

	starting sector address	sector number
file 1	A	M
	D	P
	E	Q + R + S

FIG.11

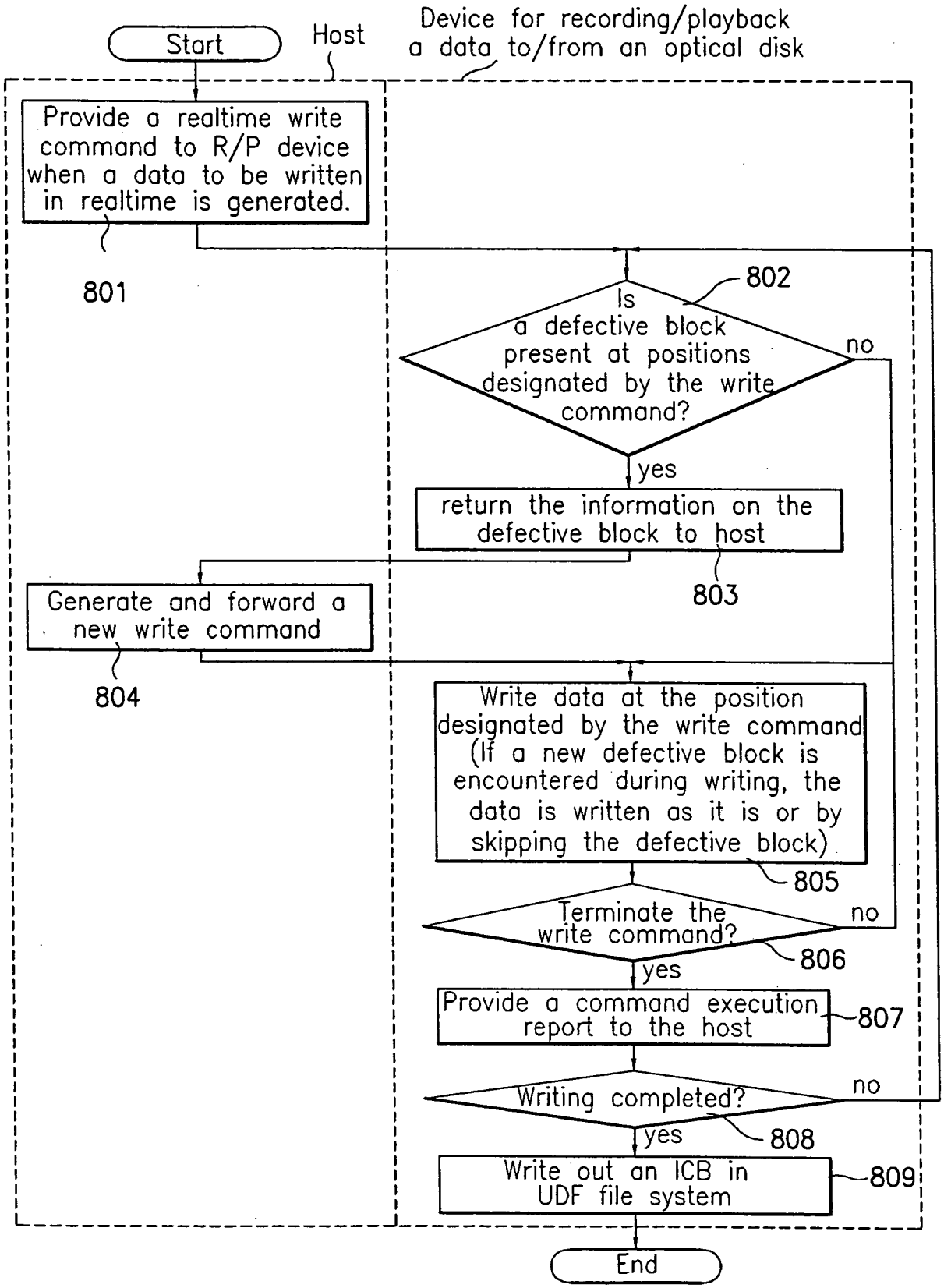
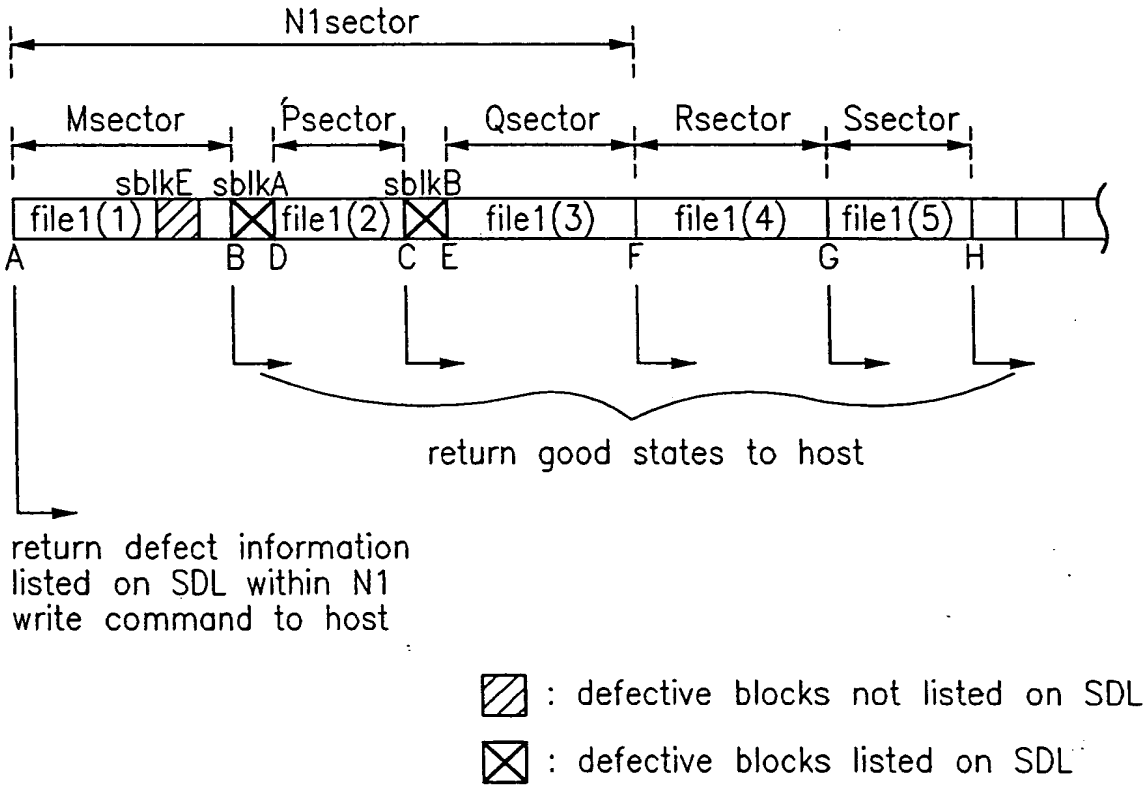

Start
Host
Device for recording/playback a data to/from an optical disk
Provide a realtime write command to R/P device when a data to be written in realtime is generated.
801
802
Is a defective block present at positions designated by the write command?
no
yes
return the information on the defective block to host
803
Generate and forward a new write command
804
Write data at the position designated by the write command (If a new defective block is encountered during writing, the data is written as it is or by skipping the defective block)
805
Terminate the write command?
no
806
yes
Provide a command execution report to the host
807
Writing completed?
no
808
yes
Write out an ICB in UDF file system
809
End

FIG.12


N1sector
Msector
Psector
Qsector
Rsector
Ssector
sblkE
sblkA
sblkB
file1(1)
file1(2)
file1(3)
file1(4)
file1(5)
A
B
D
C
E
F
G
H
return good states to host
return defect information listed on SDL within N1 write command to host
: defective blocks not listed on SDL
: defective blocks listed on SDL